

# Notice of Allowability

Application No.

09/922,006

Examiner

Ted M. Wang

Applicant(s)

TOUZNI ET AL.

Art Unit

2634

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/10/2005.
2. ☒ The allowed claim(s) is/are 1, 5-24 and 28-46.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                 |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>8/26/05</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                        |
|   | 9. <input type="checkbox"/> Other _____.  |

## **DETAILED ACTION**

### ***Examiner's Statement***

1. Applicants' amendments and arguments, filed on 06/10/2005, with respect to Claims 1, 5-24, and 28-42 have been fully considered. The 35U.S.C.103 rejection has been overcome by rewritten those objected claims – dependent claims in independent form including all of the limitations of the base claim and any intervening claims. Applicant cancels Claims 2-4 and 25-27 and adds new claims 43-46. None of the previously cited reference teaches the amended and new independent Claims 1, 24, 41-43, and 45.

### ***Examiner Amendments***

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. Authorization for this examiner's amendment was given in a telephone interview with Attorney Steve Mendelsohn on August 26, 2005.

4. The application has been amended as follows:

In the claims:

- In claim 6 line 2, change " $e^{-j\theta[n]}$ " to " $e^{-j\theta[n]}$ ".

### ***Allowable Subject Matter***

5. Claims 1, 5-24, and 28-46 are allowed.

6. The following is an examiner's statement of reasons for allowance.

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- The prior art fails to teach an apparatus of Claims 1, 24, 41-43, and 45 that specifically comprises the following:

-- The instant application is deemed to be directed to a non-obvious improvement over the admitted prior art of the instant application and the invention patented in Pat. No. US 5,692,011 and new bussgang method for blind equalization Acoustics, Speech, and Signal Processing, 1997. ICASSP-97, 1997 IEEE International Conference on, Volume: 3, 21-24 April 1997, Pages: 2269 - 2272 vol.3. The improvement comprises that step a) generates the estimate by:

a1) calculating an SA cost function error term-based on the demodulated signal, wherein the single-axis cost function is a single-axis constant modulus criterion  $J_{CM}$ ; a2) forming an approximation of a derivative of the demodulated signal with respect to the angle; and a3) combining the SA cost function error term with the approximation to form a phase error; and a4) generating the angle from the phase error; and for step a3) the phase error is the stochastic gradient of the single-axis constant modulus criterion  $J_{CM}$  ( $dJ_{CM}/d\theta$ ) given by:

$$dJ_{CM}/d\theta = 4 e_{SA-CM} [n] DT[n],$$

where  $e_{SA-CM}$  is the SA cost function error term defined by  $(\text{Re}\{y_n(\theta)\}^2 - \rho^2)$   $\text{Re}\{y_n(\theta)\}$ ,  $y_n(\theta)$  is input data based on the demodulated signal, and  $DT[n]$  approximates a derivative of the demodulated signal with respect to the angle  $\theta$  ( $d(y_n(\theta))/d\theta$ ).

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7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is (571) 272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

Ted M Wang

Examiner

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Ted M. Wang

  
**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINE**  
**TECHNOLOGY CENTER 2600**